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DOE 2 (FACTORIAL EXPERIMENTS)

BY ELITE INDIGO

Analyze complex multi-factor interactions, master fractional screening strategies, and utilize advanced software modeling to optimize manufacturing processes and drive precise engineering decisions.

REGISTERED HRD CORP TRAINING PROVIDER

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DOE 2 (Factorial Experiments)

• Program Overview

Building on foundational comparative techniques, this intensive 2-day course equips technical professionals with the methodology to design and analyze multi-factor industrial processes. Moving beyond single-variable testing, participants will explore the mechanics of full and fractional factorial designs alongside screening experiments. Using JMP software, learners will gain hands-on experience identifying main effects, evaluating structural aliasing, and manipulating prediction profilers. This workshop bridges statistical modeling with real-world application, enabling teams to isolate critical process drivers, minimize experimental runs, and rapidly implement optimal engineering solutions.

• Learning Objectives

By the end of the course, participants will be able to:

- Structure full and fractional factorial experiments using JMP software to evaluate complex variable behaviors efficiently.
- Interpret advanced graphical tools—such as cube, interaction, and Pareto plots—to separate real process signals from noise.
- Apply significance tests and prediction profilers to resolve aliasing challenges, build predictive models, and optimize manufacturing outputs.

• Pre-requisites

Vital and Applied Stats 101, DOE 1 (Comparative Experiments). Good understanding in basic Statistics (role of Statistics, data type, basic terms and concepts for statistical analysis, common graphical and numerical analyses, meaning and role of X and Y variables), hypotheses testing (α-risk, β-risk, t-test, ANOVA) and some exposure in area of application. The understanding/exposure allows the learners to follow the class well and be able to apply the knowledge learned on the job immediately after the class. Participants are required to install JMP Software (SAS JMP Pro 16.2 or later) prior the class.

• Duration

Two (2) Full-Day Workshop

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Course Schedule (Day 1)

DAY/TIME	DESCRIPTION
30 Minutes	**Opening & Introduction**
2 Hours	**Module 1: Full Factorial Experiments** • The 2^2 Factorial Experiment • The 2^k Factorial Experiment
1 Hour	**Lunch**
1 Hour	**Module 1: Full Factorial Experiments (Continued)** • JMP Lab: Design and Analysis of Replicated Full Factorial Experiments
3 Hours	**Module 2: Single Replicate Factorial Experiments** • Single Replicate 2^k Factorial Experiment • JMP Lab: Design and Analysis of Single Replicate Factorial Experiments
30 Minutes	**Summary and End of Day 1**

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DOE 2 (Factorial Experiments)

Course Schedule (Day 2)

DAY/TIME	DESCRIPTION
30 Minutes	**Opening & Introduction**
3 Hours	**Module 3: Fractional Factorial Experiments** • The ½ Fraction Experiment • Screening Experiments
1 Hour	**Lunch**
3 Hours	**Module 3: Fractional Factorial Experiments (Continued)** • JMP Lab: Design and Analysis of Fractional Factorial Experiments
30 Minutes	**Summary and End of Course**

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ABOUT ELITE INDIGO

We are dedicated to empowering businesses to achieve their full potential. With a team of seasoned professionals and a wealth of industry experience, we offer tailored consulting services to help organizations overcome challenges and seize opportunities.

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